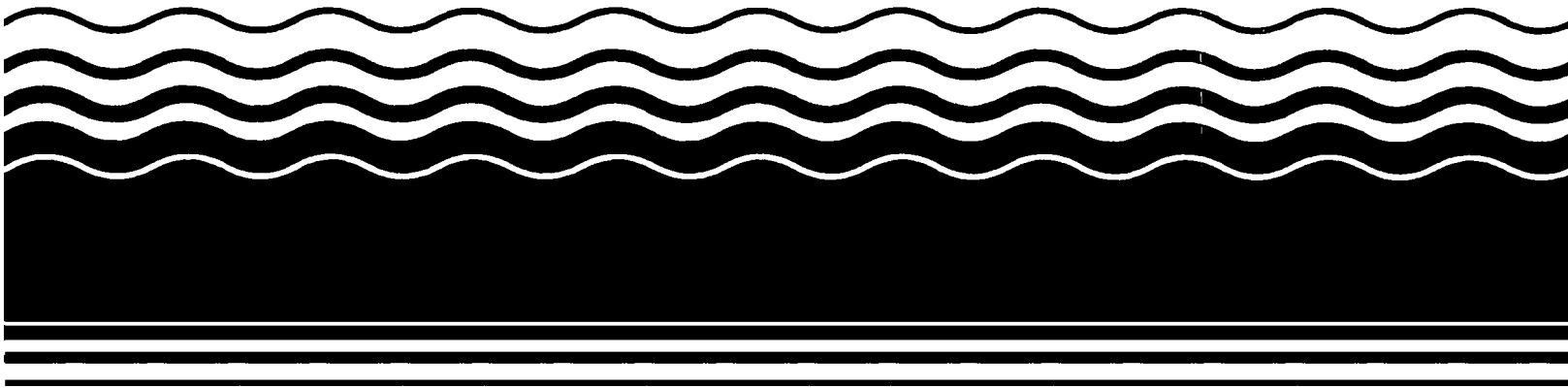




Superfund Record of Decision:

**Cosden Chemical Coatings,
NJ**



NOTICE

The appendices listed in the index that are not found in this document have been removed at the request of the issuing agency. They contain material which supplement, but adds no further applicable information to the content of the document. All supplemental material is, however, contained in the administrative record for this site.

REPORT DOCUMENTATION PAGE		1. REPORT NO. EPA/ROD/R02-92/187	2.	3. Recipient's Accession No.
4. Title and Subtitle SUPERFUND RECORD OF DECISION Cosden Chemical Coatings, NJ First Remedial Action - Final			5. Report Date 09/30/92	
			6.	
7. Author(s)			8. Performing Organization Rept. No.	
9. Performing Organization Name and Address			10. Project/Task/Work Unit No.	
			11. Contract(C) or Grant(G) No. (C) (G)	
12. Sponsoring Organization Name and Address U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460			13. Type of Report & Period Covered 800/000	
			14.	
15. Supplementary Notes PB93-963818				
16. Abstract (Limit: 200 words) The 6.7-acre Cosden Chemical Coatings site is a paint formulation and manufacturing facility in Beverly, Burlington County, New Jersey. Land use in the area is predominantly residential, with some light industry. An estimated 800 people reside within a 1-mile radius of the site. During the manufacturing process, pigments were mixed with resins and solvents in both ball and sand mills prior to adding other ingredients in mixing tanks to produce the final coating products. Mixing tanks were then washed out with solvents, and the rinsate was transferred to drums. Until 1974, organic solvents used in the manufacturing process were recycled; thereafter, drums containing spent solvents were stored onsite. Some of these drums leaked onto the ground and caused soil and ground water contamination. Additionally, solvents were stored in underground storage tanks (USTs), which may have leaked. In 1980, a grass fire onsite prompted state investigations that revealed the presence of surface spills and several hundred unsecured drums. In 1985, the state ordered Cosden to clean up the site; however, Cosden abandoned clean-up efforts after 88 of 695 drums were removed. In 1986, the state undertook emergency removal of the drummed material and clean-up of (See Attached Page)				
17. Document Analysis a. Descriptors Record of Decision - Cosden Chemical Coatings, NJ First Remedial Action - Final Contaminated Media: soil, debris, gw Key Contaminants: VOCs (benzene, TCE, toluene, xylenes), other organics (PAHs, PCBs), metals (arsenic, chromium, lead), inorganics (asbestos) b. Identifiers/Open-Ended Terms c. COSATI Field/Group				
18. Availability Statement		19. Security Class (This Report) None		21. No. of Pages 58
		20. Security Class (This Page) None		22. Price

Abstract (Continued)

surface spills around the drum storage areas. Paint manufacturing continued onsite until 1989, resulting in additional drums accumulating onsite. In 1989, EPA initiated a second removal action by constructing a fence around areas of soil contamination and removing the remaining drums, paint cans, pigment bags, mixing tanks, and UST contents. However, as the removal action neared completion in 1990, a fire occurred inside the process building, which consumed a majority of the building. This ROD addresses the final remedy for the cleanup of contaminated soil, ground water contamination in the underlying aquifer, and the Cosden building. The primary contaminants of concern affecting the soil, debris, and ground water are VOCs, including benzene, TCE, toluene, and xylenes; other organics, including PAHs and PCBs; metals, including arsenic, chromium, and lead; and inorganics, including asbestos.

The selected remedial action for this site includes treating 8,000 cubic yards of contaminated soil onsite using in-situ solidification, and disposing of a small pile of concentrated PCB-contaminated soil offsite; disposing of sludge generated during the treatment process offsite; decontaminating and demolishing the contaminated building onsite, and removing and/or recycling decontaminated debris and equipment offsite; removing asbestos and PCB-contaminated debris offsite for disposal in an appropriate offsite facility; treating ground water onsite using precipitation to remove inorganic contaminants, followed by air stripping to remove VOCs, with recharge of treated ground water to the underlying aquifer; treating air emissions using carbon adsorption, if determined to be necessary during remedial design; and implementing institutional controls including deed restrictions. The estimated present worth cost for this remedial action is \$15,172,800, which includes an annual O&M cost of \$585,500 for 1 year.

PERFORMANCE STANDARDS OR GOALS:

Chemical-specific soil clean-up goals are risk-based and include PCBs 1 mg/kg; chromium 390 to 78,000 mg/kg; and lead 500 mg/kg. Chemical-specific ground water clean-up goals are based on state standards and SDWA MCLs and include toluene 1,000 ug/l; xylenes 44 ug/l; chromium 100 ug/l; and lead 15 ug/l.

ROD FACT SHEET

SITE

Site name: Cosden Chemical Coatings Corporation

Site location: City of Beverly, Burlington County, New Jersey

ROD

Date Signed: September 30, 1992

Selected remedy:

- On-site ground water extraction with on-site treatment and recharge;
- In-situ stabilization of approximately 8,000 cubic yards of soil contaminated with inorganic compounds and PCBs;
- Decontamination and demolition of the building on the site with disposal of the building debris at an appropriate off-site facility;
- Appropriate environmental monitoring to ensure the effectiveness of the remedy.

Estimated Capital cost: \$6,116,600

Estimated Annual Operation and Maintenance (O&M) cost: \$585,500

Estimated Present-worth cost: \$15,172,800

LEAD

United States Environmental Protection Agency

Primary Contact: Paul Marsenison - (212) 264-4593

Secondary Contact: Charlie Tenerella - (212) 264-9382

Main PRPs:

Cosden Chemical Coatings Corporation;
Mr. Louis Oller, President, Cosden Chemical Coatings Corporation

WASTE

Waste type: Volatile organic compounds (VOCs), inorganic compounds, polychlorinated biphenyls (PCBs).

Waste origin: Leaking drums on-site and on-site paint manufacturing operations

Estimated waste quantity: An estimated 8,000 cubic yards of soil is contaminated with heavy metals and PCBs.

Contaminated medium: Soil, ground water, and the on-site process building.

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Cosden Chemical Coatings Corporation

City of Beverly, Burlington County, New Jersey

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Cosden Chemical Coatings Corporation site, which was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation and Liability Act, as amended, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. This decision document is based on the administrative record file for this site.

The New Jersey Department of Environmental Protection and Energy concurs with the selected remedy.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the Cosden site, if not addressed by implementing the response action selected in this Record of Decision, may present an imminent and substantial threat to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy represents the first and only planned operable unit for the Cosden Chemical Coatings Corporation site. It addresses contaminated soils and the building on the site and ground-water contamination in the underlying aquifer.

The major components of the selected remedy include the following:

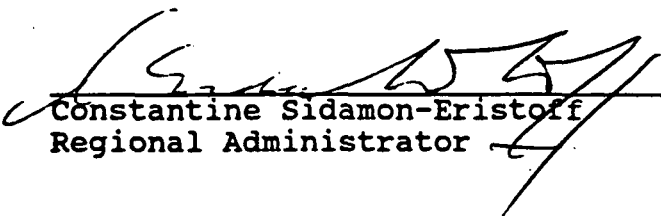
- In-situ stabilization of approximately 8,000 cubic yards of soil contaminated with inorganic compounds and polychlorinated biphenyls;
- Decontamination and demolition of the building on the site with disposal of the building debris at an appropriate off-site facility;

- Extraction of contaminated ground water with on-site treatment and recharge to the underlying aquifer; and
- Appropriate environmental monitoring to ensure the effectiveness of the remedy.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. The remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable, and it satisfies the statutory preference for remedies that employ treatment which reduces toxicity, mobility or volume as their principal element.

Because this remedy will result in hazardous substances remaining on the site above health-based levels (although in a stabilized form), a review will be conducted within five years after commencement of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.


Constantine Sidamon-Eristoff
Regional Administrator


Date

**RECORD OF DECISION
DECISION SUMMARY**

Cosden Chemical Coatings Corporation Site

City of Beverly, Burlington County, New Jersey

**United States Environmental Protection Agency
Region II
New York, New York**

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SITE NAME, LOCATION AND DESCRIPTION

The Cosden Chemical Coatings Corporation Superfund Site (the Site) is located in the southeastern corner of the City of Beverly in Burlington County, New Jersey. The Site is at the intersection of Manor Road and Cherry Street within a residential area of Beverly. It is bounded on the north and east by residential streets, on the south by Conrail tracks and farmland, and on the west by undeveloped land. The nearest residence is approximately 300 feet to the north of the Site. The Beverly Elementary School is located 0.2 miles to the northeast. The neighboring area is suburban with some light industry. The Delaware River is approximately 4,000 feet to the north, and Rancocas Creek approximately 1.5 miles to the southwest of the Site. Population within a one-mile radius of the Site is approximately 800 people.

The Site encompasses 6.7 acres and consists of a single process building that is situated in the eastern part of the property; a concrete platform that was used as a drum staging area is west of the process building (see Figure 1). The western two-thirds of the property is undeveloped and heavily vegetated.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

Cosden Chemical Coatings Corporation was a paint formulation and manufacturing facility which produced coatings for industrial applications. In the manufacturing process, pigments were mixed with resins and solvents in both ball and sand mills. The material was then placed into a mixing tank where other ingredients were added to produce the final coating products. Mixing tanks were then washed out with solvents, and the rinsate was transferred to drums. Organic solvents used in the manufacturing process were recycled until 1974. After 1974, drums containing spent solvents were stored on site; some of these drums leaked onto the ground and caused soil and groundwater contamination. Solvents were also stored in underground storage tanks, which may have leaked.

A grass fire that occurred at the Site on April 22, 1980 prompted the Burlington County Department of Public Safety to report the Site conditions to the New Jersey Department of Environmental Protection and Energy (NJDEPE). Subsequent site visits by the NJDEPE revealed the presence of surface spills, and several hundred unsecured drums. Various court actions and negotiations undertaken by NJDEPE against Cosden Chemical Coatings Corporation resulted in a judicial consent order on February 5, 1985 that ordered Cosden Chemical Coatings Corporation to clean up the Site. Cosden Chemical Coatings Corporation initiated the cleanup in February 1985, but abandoned cleanup efforts after 88 of 695 drums were removed. In January 1986, the NJDEPE then undertook

an emergency removal of the drummed material, and cleanup of surface spills around the drum storage areas.

The Site was placed on the National Priorities List (NPL) in July 1987. On December 17, 1987, the Environmental Protection Agency (EPA) issued a Special Notice Letter to Mr. Louis Oller, President, Cosden Chemical Coatings Corporation, informing him of his potential liability under CERCLA, and provided him the opportunity to undertake or finance the Remedial Investigation (RI) and Feasibility Study (FS). No response was received. On July 29, 1992, EPA issued General Notice Letters to the Cosden Chemical Coatings Corporation and to Mr. Louis Oller, President, Cosden Chemical Coatings Corporation, informing them of their potential liability, providing them the opportunity to comment on the Proposed Plan for the Site, and encouraging them to either finance or voluntarily undertake the remediation at the Site. No response was received by EPA.

Paint manufacturing continued on a small scale until May 1989, during which time additional drums accumulated on site. The plant owner ceased operations in May 1989. In June 1989, EPA initiated emergency cleanup activities at the Site by constructing a fence around areas of soil contamination; and began removing the remaining drums, paint cans, pigment bags, mixing tanks, and underground storage tank contents. On May 28, 1990, as the removal action was nearly completed, a fire occurred inside the process building which consumed a majority of the building. On May 31, 1990, the building was condemned by the Beverly City building inspector.

Ebasco Services Incorporated was tasked by EPA to initiate an RI and FS. The purpose of the RI was to define the nature and extent of contamination at the Site. The FS evaluates technologies to clean up the contamination identified at the Site. Field activities for Phase I of the RI began in November 1988.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

Public availability sessions were conducted on November 11, 1988, August 31, 1989, and February 20, 1991 to keep residents informed of Site activities and progress. The results of the Phase I field investigation and the scope of the Phase II field investigation were presented in the public availability session held on February 20, 1991. In January 1991, the Phase II field investigation was initiated. The RI, FS and Risk Assessment reports were completed in June 1992.

The RI report, FS report, and the Proposed Plan for the Site were released to the public for comment on July 27, 1992. These documents were made available to the public in the administrative

record file at the EPA Docket Room in Region II, 26 Federal Plaza, New York, NY and the information repositories at:

Beverly City Hall
Municipal Building
Broad Street
Beverly, NJ 08010
(609) 387-0205

Burlington County Library
Woodlane Road
Mt. Holly, NJ 08060

The notice of availability for the above-referenced documents was published in the Burlington County Times on July 27, 1992. The public comment period on these documents was held from July 27, 1992 to August 26, 1992.

On August 6, 1992, EPA conducted a public meeting at the Beverly City Hall to inform local officials and interested citizens about the Superfund process, to discuss the findings of the RI and FS and the proposed remedial activities at the Site, and to respond to any questions from area residents and other attendees.

EPA responses to the comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary section of this Record of Decision.

SCOPE AND ROLE OF RESPONSE ACTION

As a result of the complex distribution of contaminants throughout the site, EPA decided to address the Site by segregating the three types of contaminated media (soils, ground water, and the Cosden building). The three categories of contaminated media are evaluated individually with regard to the risk posed to human health and the environment, the potential for contaminant migration, and the development of remedial alternatives. Therefore, this Record of Decision (ROD) includes remedial alternatives to address the soils, ground water, and the Cosden building.

SUMMARY OF SITE CHARACTERISTICS

An RI was performed to determine the type and concentrations of contaminants in the various media at the Site, and in the nearby vicinity. Samples were collected from soils, ground water, and in the building. Details of the sampling efforts may be found in the RI report. The collected samples were analyzed using the EPA Contract Laboratory Program (CLP) procedures.

Site Geology and Hydrology

The Site is located in the Atlantic Coastal Plain physiographic province of southern New Jersey. Unconsolidated sediments in the shallow subsurface soil at the Site are alluvial deposits consisting mainly of sand and gravel with minor amounts of clay. It is difficult to distinguish these sediments from the lithology of the underlying Raritan and Magothy formations; thus, these units are typically combined when discussing Coastal Plain Stratigraphy.

The most productive aquifers in the Beverly area, and a significant source of municipal water, are part of the Potomac-Raritan-Magothy (PRM) aquifer system. This system is composed of three sandy aquifers (designated lower, middle, and upper) which are separated by intervening confining units composed of silt and clay. The middle aquifer exists beneath the Site. All but one of the monitoring wells installed at the Site were completed in the middle aquifer; one well was extended to bedrock to confirm the absence of the lower PRM aquifer in the Site area. An EPA well survey conducted in May 1991 found no private wells used for drinking water in the vicinity of the Site.

Water-level measurements taken from monitoring wells at the Site indicate that there is a low hydraulic gradient at the site and that it is not possible to clearly identify a predominant ground-water flow direction. However, regional ground-water flow is towards pumping centers in the southeast. The water table is located approximately twenty feet beneath the ground surface. Elevations of the water table across the Site generally vary within one tenth of a foot.

There is no defined surface drainage at the Site. The major surface water feature in the area is the Delaware River, approximately 4,000 feet north of the Site. The 100-year flood of the Delaware River is expected to occur no closer than 3000 feet north of the Site. The closest distance that the 500-year flood is expected to occur is approximately 1900 feet to the north.

Nature and Extent of Contamination

Volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), inorganics (metals), and asbestos were the primary contaminants detected at the Site. The RI identified contaminants in the soil, ground water, and in the building located on site (See Table 1).

Soil

The predominant soil contaminants and respective ranges of concentration detected, in parts per million (ppm), are: VOCs - toluene (not detected (ND) - 1,600), ethylbenzene (ND - 1,600), trichloroethylene (ND - 1.6), and xylene (ND - 7,900); PAHs - (ND - 3), phthalate esters (ND - 17); PCBs - (ND - 120); and metals - chromium (6 - 36,100), cadmium (1.1 - 2.6), lead (3.7 - 6580), and beryllium (0.2 - 0.6). Metals contamination accounts for approximately 8,000 cubic yards (yd³) of the contaminated soil; of this amount, approximately 350 yd³ are also contaminated with PCBs greater than 1 ppm (See Figure 2). Soil contamination, for the most part, is limited to the top four feet of soil. The manufacturing processes at the Site involved the mixing of pigments with resins and solvents to make paints and industrial coatings. A history of poor waste handling practices and the presence of leaking drums contributed to the soil contamination at the Site.

Ground water

The predominant ground-water contaminants and respective ranges of concentration detected, in parts per billion (ppb), are: VOCs - toluene (ND - 1,800), ethylbenzene (ND - 590), and xylenes (ND - 1,340), trichloroethene (ND - 84); and metals - beryllium (ND - 3.4), and chromium (ND - 388). The estimated dimensions of the contaminated ground-water plume are: 200 feet wide by 100 feet long by 60 feet deep (See Figure 3). The contaminated aquifer at the Site is the middle PRM aquifer. The ground-water plume is situated beneath the main area of the Site, and is the result of contamination that has migrated through the soil to the ground water.

Building

The predominant building contaminants are: metals - copper, lead, chromium, and zinc; PCBs; and asbestos. Additionally, the building has been condemned because of structural failure, and is an imminent hazard to personnel involved in on-site activities.

SUMMARY OF SITE RISKS

Based upon the results of the RI, a baseline risk assessment was conducted to estimate the risks associated with current and future site conditions. The baseline risk assessment estimates the human health and environmental risk which could result from the contamination at the Site if no remedial action were taken.

Human Health Risk Assessment

A four-step process is utilized for assessing site-related human health risks for a reasonable maximum exposure scenario: *Hazard Identification*--contaminants of concern at the Site are identified based on several factors such as toxicity, frequency of occurrence, and concentration (Table 2). *Exposure Assessment*--estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well water) by which humans are potentially exposed (Table 3). *Toxicity Assessment*--determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response) (Table 4). *Risk Characterization*--summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-one-million excess cancer risk) assessment of site-related risks. The reasonable maximum exposure was evaluated (Table 5).

EPA uses reference doses (RfDs) to calculate noncarcinogenic risk and slope factors to calculate the carcinogenic risk attributable to a particular contaminant. An RfD is an estimate of a daily exposure level that is not likely to result in any appreciable risk of deleterious effects during a person's lifetime. A slope factor establishes the relationship between the dose of a chemical and the response and is commonly expressed as a probability of a response per unit intake of a chemical over a lifetime. Although EPA has established RfDs and slope factors for many chemicals, there are chemicals that currently do not have RfDs, slope factors, or similarly accepted toxicological parameters. Consequently, the risk due to such contaminants cannot be quantified. This is of particular significance at the Site since lead, a major contaminant of concern, does not have an RfD or slope factor. Therefore, lead was qualitatively evaluated independent of the other contaminants of concern.

The Baseline Risk Assessment identified contaminants of concern which would be representative of site risks. These contaminants included: methylene chloride, tetrachlorethane, trichloroethene, acetone, benzene, ethylbenzene, toluene, xylenes, arsenic, beryllium, cadmium, chromium, carcinogenic PAHs, pesticides, asbestos, and PCBs. Several of the contaminants, including arsenic, beryllium, methylene chloride, PCBs, and PAHs, are known to be, or are, probable human carcinogens.

The Baseline Risk Assessment evaluated site-specific exposure scenarios that represent situations in which humans may be exposed to contaminants originating from the Site under present and future land use patterns. Under current conditions, the exposure pathways of concern are trespassers' exposure to surface soil both inside and outside the fenced area, and exposures of

nearby residents and other receptors to volatile organic contaminants released into the air from the Site surface and subsurface soil. Under a potential residential development scenario, the key routes of exposure which were identified are on-site residential exposures to surface soils and volatilized contaminants in air, and exposures through the consumption of water from wells installed in the unconsolidated aquifer which lies beneath the Site. In addition, it was assumed that future workers at the Site could be exposed to subsurface soil during excavation or grading activities. Current federal guidelines for acceptable exposure are an excess carcinogenic risk in the range of 10^{-4} to 10^{-6} (approximately one in ten thousand to one in one million).

Lifetime cancer risks were calculated for all of the various pathways under the present and future land-use scenarios. Under current conditions, the highest risks were those associated with dermal contact and ingestion of Site soils. Estimated cancer risks for soil ingestion and dermal contact under the present use scenario were 2.1×10^{-6} for children, and 1.9×10^{-6} for adults, which are well within the guidelines for acceptable exposure. These risk numbers mean that two additional children out of one million and two additional adults out of one million are at risk of developing cancer if the soils outside the fenced area are ingested. Under a potential future residential development scenario, which is considered the most conservative exposure scenario, the estimated risks due to dermal contact and ingestion of Site soils is 2.7×10^{-5} (2.7 in a hundred thousand) for adults, and 3.1×10^{-5} for children, which are also within the guidelines for acceptable exposure. However, lead, which is not included in the quantitative risk assessment because of technical infeasibility, has been found at concentrations above EPA health-based guidance levels.

Under future land use scenarios, the highest risks were those associated with ingestion of ground water. Estimated cancer risks for ingestion of ground water were 2.8×10^{-4} (2.8 in ten thousand) for adults, and 9.0×10^{-5} for children. In addition, the concentrations of the following contaminants were found above promulgated Federal and/or State Maximum Contaminant Levels (MCLs): toluene, xylene, trichloroethene, chromium, and lead.

To assess the overall potential for noncarcinogenic effects posed, EPA developed the Hazard Index (HI). This index measures the assumed simultaneous subthreshold exposures to chemicals, which could result in an adverse health effect. Current federal guidelines for acceptable exposures are a maximum health HI equal to 1.0. The results indicated that, in the present and future use scenarios, direct contact and ingestion of contaminated soil do not pose an unacceptable risk to human health. The HIs are estimated to be 0.054 for children, and 0.015 for adults in the

present use scenario; and 0.52 and 0.11, respectively, in the future use scenario. However, ingestion of contaminated ground water in the future use scenario does pose an elevated risk to human health. The HIs were estimated to be 1.6 for children, and 1.1 for adults.

Lead, which was previously identified as not having an RfD or slope factor, is present in the soil at a maximum concentration of 6580 ppm, and on and in the building at percentage levels (greater than 10,000 ppm). Exposure to lead has been associated with human noncarcinogenic effects. The major adverse effects in humans caused by lead include alterations in red blood cell production and the nervous system. High concentrations in the blood can cause severe irreversible brain damage and possible death. EPA has also classified lead as a B2 carcinogen, which indicates that it is considered a probable human carcinogen.

EPA has developed health based cleanup levels for lead in soil based on a model that predicts blood lead levels in the most sensitive populations (children) from exposure to lead contaminated air, dust, drinking water, soil, and diet. EPA guidance recommends using a soil cleanup level of 500-1000 ppm until RfDs and slope factors are established. Considering the potential future residential development of the Site, the lower end of EPA's recommended soil cleanup range (500 ppm) is being applied at the Site.

EPA has also developed health based cleanup levels for PCBs in soil. The recommended soil action level for sites in residential areas with PCB contamination is 1 ppm.

MCLs have been exceeded in ground water underlying the Site. The ground water is being contaminated with metals and volatile organic chemicals from soils on the Site.

With regard to the on-site building, conventional Superfund risk assessment methodology is not directly applicable. The predominant contaminant in the building is lead and, as previously identified, lead does not have an RfD. Additionally, the EPA lead model used to develop acceptable levels in soils would not be applicable to the short-term exposure scenario for the building. Therefore, the levels of lead on the building surfaces were compared to the maximum lead levels for interior surfaces as defined by the Federal Department of Housing and Urban Development (HUD). The HUD standard is 2.1 milligrams per square meter (mg/m^2). Wipe samples in the building measured from 140 to 450 mg/m^2 . These levels represent an unacceptable short-term exposure risk (trespasser scenario); therefore, remediation is warranted to reduce the risk associated with exposure to the lead contaminated building surfaces.

Actual or threatened releases of hazardous substances from the Site, if not addressed by the preferred alternative, or one of the other active measures considered, may present a current or potential threat to public health, welfare, or the environment.

Environmental Risk Assessment

The environmental evaluation provides a qualitative assessment of the actual or potential impacts associated with the Site on plants and animals (other than people or domesticated species). The primary objectives of this assessment are to identify the ecosystems, habitats, and populations likely to be found at the Site and to characterize the contaminants, exposure routes and potential impacts on the identified environmental components.

There were no endangered species, sensitive ecosystems, or sensitive habitats identified on the Site. The environmental assessment concluded that adverse impacts to on-site plants and animals from on-site contamination is not likely.

Uncertainties

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include:

- environmental chemistry sampling and analysis
- environmental parameter measurement
- fate and transport modeling
- exposure parameter estimation
- toxicological data.

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry-analysis error can stem from several sources including the errors inherent in the analytical methods and characteristics of the matrix being sampled.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the chemicals of concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemicals of concern at the point of exposure.

Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by

making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the Risk Assessment provides upper-bound estimates of the risks to populations near the Site, and is highly unlikely to underestimate actual risks related to the Site.

More specific information concerning public health risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the Risk Assessment Report.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives are specific goals to protect human health and the environment. These objectives are based on available information, applicable or relevant and appropriate requirements (ARARs), and risk-based levels established in the risk assessment. The following remedial action objectives were established for the Site:

- Prevent exposure to contaminant sources that present a significant human health risk and;
- Restore contaminated ground water to drinking water standards.

DESCRIPTION OF REMEDIAL ALTERNATIVES

The Comprehensive Environmental Response, Compensation and Liability Act, as amended (CERCLA) requires that each selected site remedy be protective of human health and the environment, be cost effective, comply with other statutory laws, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. In addition, the statute includes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

Fifteen remedial alternatives for addressing the contamination associated with the Site were evaluated in detail in the FS.

These included for soils: thermal desorption, in-situ vacuum extraction, capping, incineration, and stabilization; and for ground water: air stripping, carbon absorption, and ultraviolet treatment. The Risk Assessment, which was prepared concurrently with the FS, showed that VOC contamination in the soils on the Site does not pose an unacceptable risk to human health or the environment. Accordingly, the remedial alternatives brought forward from the FS for evaluation in the Proposed Plan and this Record of Decision do not include the specific treatment of VOCs

in the on-site soils, which include: thermal desorption, in-situ vacuum extraction, and incineration.

The estimated capital cost, operation and maintenance (O&M) cost, and net present worth costs of each of the alternatives are provided below for comparison purposes. It should be noted that the noted times for implementation reflect only the time required for actual construction and does not include the time necessary to design the remedy, negotiate with responsible parties, or procure contracts for design and construction.

The alternatives that remain after screening are:

SOIL REMEDIAL ALTERNATIVES

The soil remedial alternatives discussed below were developed to address metals and PCB contamination. The volatile organic contaminants in the soil are not above the EPA risk based remediation goals for direct contact or ingestion. Accordingly, the soil remedial alternatives have been developed to effectively reduce the potential ingestion and dermal contact risks associated with metals and PCBs.

Alternative S-1: No Action

Estimated Capital Cost: \$0
Estimated 5 Year Review Cost: \$20,000 per review
Estimated Present Worth: \$55,600 (includes six 5 yr reviews)
Estimated Construction Time: none

CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) require the evaluation of a No Action alternative to serve as a point of comparison with other remedial action alternatives. The No Action alternative for the on-site soils would allow the Site to remain in its present condition. Because this alternative would result in contaminants remaining on site, CERCLA requires that the Site be reviewed at least every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes. No other action is proposed under this alternative.

Alternative S-2: Limited Action

Estimated Capital Cost: \$0
Estimated Annual Operation and Maintenance (O&M) Cost: \$0
Estimated 5 Year Review Cost: \$20,000 per review
Estimated Present Worth: \$55,600 (includes six 5 yr reviews)
Estimated Construction Time: none

The Limited Action alternative would allow the Site to remain in its present condition, but would require that the perimeter fence be maintained and deed restrictions imposed to restrict access.

Because this alternative would result in contaminants remaining on site, CERCLA requires that the Site be reviewed at least every five years.

Alternative S-3: Capping

Estimated Capital Cost: \$599,400
Estimated Annual O&M Cost: \$121,000
Estimated 5 Year Review Cost: \$20,000 per review
Estimated Present Worth: \$2,515,100 (includes six 5 yr reviews)
Estimated Construction Time: six months

In this alternative, approximately 135 yd³ of contaminated soil outside the main area of contamination would be excavated and moved to the main contaminated area. Following consolidation, an area of approximately 51,000 square feet area would be graded and capped with an asphalt cap. This alternative would require deed restrictions to protect the capped area. Because this alternative would result in contaminants remaining on site, CERCLA requires that the Site be reviewed at least every five years. Additional monitoring wells would be installed and sampled to ensure the effectiveness of the remedial action.

Alternative S-4: Excavation, Off-Site Stabilization and Disposal, and Backfill

Estimated Capital Cost: \$7,187,850
Estimated Annual O&M: \$0
Estimated Present Worth: \$7,187,850
Estimated Construction Time: six months

This alternative would require that a total of approximately 8,000 yd³ of soil be excavated and treated off site. Soil excavation would be limited to approximately a 51,000 square foot area. The soils, which are contaminated with PCBs, and metals, would be excavated and transported off site to a permitted stabilization facility. Clean soil would be used to backfill the excavated area.

Alternative S-5: Excavation, On-Site Stabilization, and On-Site Backfill

Estimated Capital Cost: \$2,098,950
Estimated 5 Year Review Cost: \$20,000 per review
Estimated annual O&M Cost: \$106,600
Estimated Present Worth: \$3,793,250 (includes six 5 yr reviews)
Estimated Construction Time: one year

The soil contaminated with PCBs and metals (approximately 8,000

yd³) would be stabilized using solidification on site. The contaminated soil would be excavated and loaded into a batch plant and mixed with reagents such as portland cement, fly ash, or silicate. The solidified material would be deposited back on the Site. Additionally, a small pile of concentrated PCB contaminated soil would be disposed of off site. Deed restrictions would be imposed to ensure that the stabilized material is not disturbed. Additional monitoring wells would be installed and sampled to ensure the effectiveness of the remedial action.

Alternative S-6: In-Situ Stabilization

Estimated Capital Cost: \$1,573,700
 Estimated 5 Year Review Cost: \$20,000 per review
 Estimated Annual O&M Cost: \$106,600
 Estimated Present Worth: \$3,268,000 (includes six 5 yr reviews)
 Estimated Construction Time: one year

The soil contaminated with PCBs and metals (approximately 8,000 yd³) would be stabilized using in-situ solidification. This system incorporates mechanical mixing of the contaminated soil and injection of reagents into the soil to immobilize both PCBs and inorganic contaminants. The stabilizing additives create a cement-like mass that would cure in place. Additionally, a small pile of concentrated PCB contaminated soil would be disposed of off site. Deed restrictions would be imposed to ensure that the stabilized material is not disturbed. Additional monitoring wells would be installed and sampled to ensure the effectiveness of the remedial action.

GROUND WATER REMEDIAL ALTERNATIVES

Alternative GW-1: No Action

Estimated Capital Cost: \$0
 Estimated 5 Year Review Cost: \$ 20,000 per review
 Estimated Present Worth: \$55,600 (includes six 5 yr reviews)
 Estimated Construction Time: none

As stated under Alternative S-1, the NCP and CERCLA require the evaluation of a No Action alternative to serve as a point of comparison with other remedial action alternatives. Under the No Action alternative, contaminated ground water would remain on site. Because this alternative would result in contaminants remaining on site, CERCLA requires that the Site be reviewed at least every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes. No other action is proposed under this alternative.

Alternative GW-2: Limited Action

Estimated Capital Cost: \$ 231,400
Estimated Annual O&M Cost: \$ 90,000
Estimated 5 Year Review Cost: \$ 20,000
Estimated Present Worth: \$ 1,670,500 (includes six 5 yr reviews)
Estimated Construction Time: six months

The Limited Action alternative for the contaminated ground water underlying the Site would include a long-term monitoring program and an institutional control program to regulate the use of the aquifer. The monitoring program would include the installation and sampling of additional monitoring wells.

Alternative GW-3: On-Site Ground-Water Extraction and Treatment, and Recharge to the Aquifer

This alternative would provide for on-site extraction and treatment of contaminated ground water at the Site. The ground water would be extracted, treated, and recharged to the aquifer. Available ground-water treatment technologies are presented as options.

Option 1: Precipitation, Air Stripping, and Reinjection.

Estimated Capital Cost: \$1,438,000
Estimated Annual O&M Cost: \$478,900
Estimated Present Worth: \$8,799,900
Estimated Construction Time: six months

This option would consist of a treatment system which begins with precipitation of inorganic contaminants, such as metals. After removal of inorganics, the treated stream would be fed into an air stripping unit designed to remove volatile organic compounds. It is anticipated that, for organics, treatment would need to continue until the volatile organic contaminants in the soil no longer represent a source of ground-water contamination. However, it is expected that the precipitation treatment would continue, after the organics are removed, due to the difficulty expected in removing the metals contamination from the ground water. Organics in the air stream may require that the air stream be passed through a carbon absorption unit before emission to the atmosphere. This would be determined during design. The sludge resulting from the inorganics precipitation and the organics captured in the activated carbon would be disposed of off site.

Option 2: Precipitation, Activated Carbon Treatment, and Reinjection

Estimated Capital Cost: \$1,522,800
Estimated Annual O&M Cost: \$494,200
Estimated Present Worth: \$9,119,600
Estimated Construction Time: six months

This option would consist of a treatment system which begins with precipitation of inorganics such as metals. The treated stream would then be fed into a liquid phase carbon absorption system designed to remove volatile organic compounds. The sludge resulting from the inorganics precipitation and the organics captured in the activated carbon would be disposed of off site.

Option 3: Precipitation, Ultra Violet (UV) Oxidation, and Reinjection

Estimated Capital Cost: \$1,669,200
Estimated Annual O&M Cost: \$666,900
Estimated Present Worth: \$11,951,100
Estimated Construction Time: six months

This option would consist of a treatment system which begins with precipitation of inorganics such as metals. Inorganics removal would be followed by UV oxidation. The UV oxidation process uses UV radiation, and hydrogen peroxide and/or ozone, to destroy toxic organic compounds in water. Organics in the off gases may require that the gases be captured prior to release to the atmosphere. The sludge resulting from the inorganics precipitation, and the organics captured, would be disposed of off site.

BUILDING REMEDIAL ALTERNATIVES**Alternative B-1: No Action**

Estimated Capital Cost: \$0
Estimated 5 Year Review Cost: \$20,000
Estimated Present Worth: \$55,600 (includes six 5 yr reviews)
Estimated Construction Time: none

The No Action alternative would allow the building to remain in its present condition. Because this alternative would result in contaminants remaining on site, CERCLA requires that the Site be reviewed at least every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes. No other action is proposed under this alternative.

Alternative B-2: Limited Action

Estimated Capital Cost: \$30,800
Estimated Annual O&M Cost: \$10,200
Estimated 5 Year Review Cost: \$20,000
Estimated Present Worth: \$243,200 (includes six 5 yr reviews)
Estimated Construction Time: none

The Limited Action alternative would allow the building to remain in its present condition but would require that the perimeter fence be maintained to restrict access. Because this alternative would result in contaminants remaining on site, CERCLA requires that the Site be reviewed at least every five years. No other action is proposed under this alternative.

Alternative B-3: Decontamination, Demolition, and On-site Disposal

Estimated Capital Cost: \$2,852,600
Estimated Annual O&M Cost: \$7,700
Estimated 5 Year Review Cost: \$20,000
Estimated Present Worth: \$3,026,600 (includes six 5 yr reviews)
Estimated Construction Time: six months

This alternative would consist of decontaminating the building to secure a non-hazardous waste classification (NJAC 7:26 ID-27), demolition and on-site disposal of the remaining structure, and the construction of an asphalt cap over the remaining debris. Decontamination would include: removal and off-site disposal of asbestos and PCB contaminated debris piles; and hydroblasting and/or grit blasting of contaminated floors, walls, process vessels, and tanks. Any recyclable debris and equipment would be recycled. The decontaminated building would then be demolished and disposed of on site as clean fill. Material not suitable as clean fill would be disposed of at an appropriate off-site landfill. An asphalt cap would then be placed over the resulting clean fill. This alternative would require land use restrictions for the capped area.

Alternative B-4: Decontamination, Demolition, and Off-site Disposal

Estimated Capital Cost: \$3,104,900
Estimated Annual O&M Cost: \$0
Estimated Present Worth: \$3,104,900
Estimated Construction Time: six months

This alternative would consist of decontaminating the building to secure a non-hazardous waste classification (NJAC 7:26 ID-27), demolition and off-site disposal of the remaining structure.

Decontamination would include: removal and off-site disposal of asbestos and PCB contaminated debris piles; and hydroblasting and/or grit blasting of contaminated floors, walls, process vessels, and tanks. Any recyclable debris and equipment would be recycled. The decontaminated building would then be demolished and disposed of off site.

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

In accordance with the NCP, a detailed analysis of each remedial alternative was conducted with respect to each of nine criteria. This section discusses and compares the performance of the remedial alternatives considered against these criteria. All selected alternatives must at least attain the Threshold Criteria. The selected alternative should provide the best balance among the nine criteria. The Modifying Criteria were evaluated following the public comment period.

During the detailed evaluation of remedial alternatives, each alternative was assessed utilizing nine evaluation criteria as set forth in the NCP. These criteria were developed to address the requirements of Section 121 of CERCLA to ensure all important considerations are factored into remedy selection decisions.

Threshold Criteria

1. **Overall Protection of Human Health and the Environment** addresses whether or not an alternative provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.
2. **Compliance with Applicable and Relevant and Appropriate Requirements (ARARs)** addresses whether or not an alternative will meet all of the ARARs of the Federal and State environmental statutes or provide a basis for invoking a waiver.

Primary Balancing Criteria

3. **Long-term Effectiveness and Permanence** refers to the magnitude of residual risk and the ability of an alternative to maintain reliable protection of human health and the environment over time once remedial objectives have been met.
4. **Reduction of Toxicity, Mobility, or Volume** addresses the statutory preference for selecting remedial actions that employ treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of the hazardous substances as a principal element.

5. **Short-term Effectiveness** refers to the period of time that is needed to achieve protection, as well as the alternative's potential to create adverse impacts on human health and the environment that may result during the construction and implementation period.
6. **Implementability** is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular alternative.
7. **Cost** includes estimated capital and operation and maintenance costs, and the present worth costs.

Modifying Criteria

8. **State acceptance** indicates whether, based on its review of the RI/FS and the Proposed Plan, the State supports, opposes, and/or has identified any reservations with the preferred alternative.
9. **Community acceptance** refers to the public's general response to the alternatives described in the Proposed Plan and the RI and FS reports. Responses to public comments are addressed in the Responsiveness Summary of this ROD.

A comparative analysis of the remedial alternatives based upon the evaluation criteria noted above follows.

Overall Protection

The soil No Action (S-1) and Limited Action (S-2) alternatives do not offer adequate protection of human health and the environment because the levels of metals and PCBs found in the soils would remain. Alternatives S-1 and S-2 would not reduce the human health hazards associated with direct contact and ingestion of metals and PCB contaminated soils. The capping alternative (S-3) would effectively control the dermal contact and ingestion pathways, and therefore provide adequate protection of human health. Alternative S-4, by removing all contaminated soil for off-site disposal, would offer the greatest level of overall protection at the Site, but would move the potential threat to another location. Alternatives S-5 and S-6 would offer adequate overall protection by immobilizing metals and PCB contamination in the soils.

On-site ground water is contaminated above Federal and/or State MCLs; therefore, overall protection of human health would not be accomplished with Alternative GW-1. Institutional controls contained in Alternative GW-2 would provide minimal protection by

restricting use of the contaminated ground water. The active remediation outlined in Alternative GW-3 would restore the contaminated ground water to drinking water quality, and would provide overall protection of human health. It is expected to also significantly reduce the level of volatile organic compounds in the soil.

Alternatives B-1 and B-2 would not adequately protect human health from the hazards associated with the Cosden building. Lead has been identified within the building at levels which pose unacceptable risks during acute exposures (trespasser scenario); therefore, institutional controls would not provide adequate protection. Alternatives B-3 and B-4 would minimize hazards associated with direct contact and ingestion of lead contamination in the building. In addition, health risks to on-site workers associated with asbestos and the potential for physical injury from the condemned structure would not be addressed.

Compliance with ARARs

Alternatives S-1, S-2, and S-3 would not meet the risk-based guidance for cleanup of lead or PCBs. Alternatives S-4, S-5, and S-6 would meet them. On-site solidification in Alternatives S-5 and S-6 may also be required to comply with the Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDRs), based upon metals content and leachability characteristics. Waivers from ARARs are not anticipated for any of the active cleanup alternatives. If the selected treatment technology cannot meet the LDR standards for characteristic wastes, a treatability variance may be required.

Contaminant levels in the ground water are above established MCLs, which are the applicable requirements for drinking water, and would not be expected to appreciably attenuate. Therefore, Alternatives GW-1 and GW-2 would not meet contaminant-specific ARARs. Alternative GW-3 would treat the ground water until promulgated State and Federal MCLs are attained; ARARs for extraction and recharge of ground water would also be met.

Contaminant-specific ARARs for building remediation do not exist; therefore, Alternatives B-1 and B-2 would not have to meet any ARARs. However, specific ARARs do exist for asbestos removal and building demolition. Since the building is structurally unsafe, contaminant-specific ARARs for disposal of construction debris will be used. Based on this, Alternatives B-3 and B-4 would meet all ARARs.

Long-Term Effectiveness

The No Action and Limited Action alternatives (S-1, S-2, GW-1, GW-2, B-1, and B-2) would not provide an acceptable reduction in

risk in the soil, ground water, or the building. Each of these alternatives would result in hazardous substances remaining on site; this would require that EPA review the Site at least every five years.

Alternative S-3 would provide an acceptable reduction in risk by eliminating direct contact exposure; however, hazardous substances would remain on site, requiring long-term maintenance and deed restrictions to preserve its protectiveness. Each of the treatment alternatives (S-4, S-5, and S-6) would remediate the soil for metals and PCB contamination, and therefore, would represent permanent solutions. However, Alternatives S-5 and S-6 would require long-term monitoring and deed restrictions to ensure the integrity of the stabilized material on the site.

Alternative GW-3 would be consistent with the long-term effectiveness goals for the Site by treating the ground water until MCLs are achieved, or until it becomes technically infeasible to attain remediation goals. Ground-water treatment objectives would be equally well served by any of the three treatment options.

Alternative B-3 would provide an adequate reduction in risk by protecting against health hazards associated with direct contact and ingestion of lead and PCBs, and physical injury from the collapsed building. Since this alternative would include on-site capping of the building debris, it would require long-term maintenance and deed restrictions to preserve its protectiveness. Alternative B-4 would permanently remove the contaminants and physical hazards associated with the building, and would be the most effective long-term solution.

Reduction of Toxicity, Mobility or Volume of Contaminants

The No Action and Limited Action alternatives (S-1, S-2, GW-1, GW-2, B-1, and B-2) would achieve only minimal reduction in toxicity of organics, through natural biodegradation and volatilization; while metals and PCBs would persist at high concentrations.

Alternative S-4 would reduce the toxicity and volume of the metals and PCBs. Alternatives S-5 and S-6 would achieve effective reduction in mobility of the metals and PCBs through stabilization. The stabilization process, however, would increase the volume of the contaminated matrix up to 40 percent, because of the addition of the solidifying reagents.

Alternative GW-3 and the associated options are all equally effective in the reduction of toxicity, mobility, and volume of contaminants in the ground water.

Alternatives B-3 and B-4 would be equally effective in the reduction of the toxicity, mobility, and volume of contaminants to acceptable levels.

Short-Term Effectiveness

The No Action and Limited Action alternatives (S-1, S-2, GW-1, GW-2, B-1, and B-2) would have no short-term impacts.

All of the soil treatment alternatives involve disturbing the soil, which will generate dust and volatile emissions to some degree. Alternative S-3 would have minimal short-term impacts during the construction of the cap. The excavations planned in Alternatives S-4, S-5, and S-6 would have the greatest short-term impacts; these alternatives may require air monitoring and engineering controls to reduce airborne dust and emissions. Since Alternative S-6 would be conducted in-situ, it would have fewer short-term impacts than S-4 and S-5. Preliminary modeling of the emissions that can be expected during the excavation activities in Alternatives S-3, S-4, S-5, and S-6, indicates that the short-term impacts would be minimal. The amount of time until protectiveness is achieved is approximately six months, and is about the same for all of the soil treatment alternatives. All of the soil alternatives would require the implementation of a health and safety plan to minimize any risks to on-site workers and nearby residents.

The installation and sampling of extraction and monitoring wells in Alternative GW-3 would have a minimal short-term impact. A health and safety plan would be implemented to minimize the well installation and sampling risks. The estimated time to restore the aquifer to drinking water standards is approximately thirty years, and is the same for all three treatment options.

The asbestos removal, decontamination, and demolition activities in Alternatives B-3 and B-4 have the potential for adverse short-term impacts. An air monitoring program would be required to evaluate the type and degree to which engineering controls are implemented. The health and safety plan would incorporate procedures to minimize risks to on-site workers and off-site residents.

Implementability

There are no difficulties with respect to implementing the No Action alternatives (S-1, GW-1, and B-1), as they would only involve five year reviews. The Limited Action alternatives (S-2, GW-2, and B-2) are also easily implementable, as they only involve fence maintenance, five year reviews, and deed restrictions.

The capping under Alternative S-3 is readily available and easily implemented. However, Alternative S-3 may not be consistent with future residential use of the property. Alternative S-4 may be difficult to implement due to the limited availability of an off-site facility that is permitted to stabilize and dispose of the hazardous substances contained in the on-site soils. The solidification of metals and PCB contaminated soil is common to Alternatives S-5 and S-6, and is an easily implemented and proven technology. However, some active treatment of volatile organic contaminants will likely be necessary to ensure that the in-situ stabilization process is not adversely affected. This may include a soil vapor extraction process to remove high concentrations of volatiles below the ground surface. The need for organics removal will be based on treatability studies during design.

The ground-water extraction and recharge systems in Alternative GW-3 are easily implementable. Precipitation, and the air stripping and carbon absorption treatment options are well proven technologies. The UV oxidation technology, on the other hand, is relatively new. The UV treatment option may experience problems in start-up and require treatability studies to determine effectiveness in achieving effluent limitations.

Asbestos removal in Alternatives B-3 and B-4 is widely done and relatively easy to implement. Decontamination of the building surfaces, which is common to these alternatives, is also easily implementable. Demolition is a routine practice and should not pose any problems.

A common implementation problem in remediation at Superfund sites is the increased traffic resulting from the transport of equipment, materials, and substances designated for off-site disposal. Therefore, traffic control programs will be required. Another common implementation problem may be the availability of an on-site staging area. Any planned ground-water and/or soil remediation alternatives will require various staging areas for materials, equipment, decontamination, and support services. The limited availability of a staging area would likely require that the building demolition materials be disposed of off site. Additionally, any intrusive soil remediation and/or building demolition would require the removal and disposal of the four underground storage tanks.

Cost (Also, see Table 6)

Estimated present worth costs for stabilization range from \$3,268,000 for Alternative S-6 (in-situ stabilization) to \$7,187,850 for Alternative S-4 (off-site stabilization). Alternative S-6 is the most cost-effective alternative for metals and PCB soil contamination that is protective of human health and the environment.

The estimated present worth of the treatment options in Alternative GW-3 is \$8,799,900 for Option 1, \$9,119,600 for Option 2, and \$11,951,100 for Option 3. Alternative GW-3 with Option 1 (air stripping) is the most cost-effective alternative that will be protective of human health and the environment.

The estimated present worth of the building alternatives is \$3,026,600 for Alternative B-3 (decontamination, demolition, and on-site disposal), and \$3,104,900 for Alternative B-4. Alternative B-4 (decontamination, demolition, and off-site disposal) is the most cost-effective alternative that will be protective of human health and the environment.

State Acceptance

The State of New Jersey concurs with the selected alternatives presented in this Record of Decision.

Community Acceptance

Community acceptance was evaluated after the close of the public comment period. Written comments received during the public comment period, as well as verbal comments during the public meeting on August 6, 1992, were evaluated. The response to those comments are addressed in the Responsiveness Summary.

Comments received during the public comment period indicated that the local residents were satisfied with the preferred alternative for the building, however, recommended different alternatives for the soil and ground water. The residents, in a letter to EPA, were not supportive of the in-situ stabilization process or the ground-water pumping and treatment system. The residents proposed off-site disposal of the contaminated soil and no action for the contaminated ground water.

SELECTED REMEDY

After review and evaluation of the seven remedial alternatives in accordance with Section 121 of CERCLA and Section 300.430 of the NCP, the EPA and NJDEPE presented Alternative GW-3 with Option 1, Alternative S-6, and Alternative B-4 to the public as the preferred alternative. The input received during the public comment period is presented in the Responsiveness Summary, which is part of this document. The public comments that were received encompassed a wide range of issues, but did not necessitate any major changes in the general remedial approach proposed for the Site. Accordingly, the preferred alternative was selected.

The major components of the selected remedy include the following:

For soils:

- In-situ stabilization of 8,000 yd³ of inorganic and PCB contaminated soil.

For ground water:

- On-site ground-water extraction, precipitation, treatment by air stripping, and recharge to the aquifer.

For the building:

- Decontamination, demolition, and off-site disposal of building debris.

The goal of the ground-water portion of the remedial action is to restore the ground water to its beneficial use, in this case, a potential source of drinking water. However, EPA recognizes that the selected remedy may not achieve this goal because of the technical difficulties associated with achieving ground-water cleanup levels. It may become apparent, during implementation or operation of the ground-water extraction/treatment system that contaminant levels have ceased to decline and are remaining constant at levels higher than the remediation goal. In such a case, the system's performance standards and/or the remedy may be reevaluated. Performance monitoring of the ground-water extraction and treatment system will be implemented. The data collected would be used to suggest system adjustments or modifications to provide more effective or efficient attainment of cleanup levels. Such adjustments or modifications may include: increasing or decreasing the extraction rate, initiating a pulsed pumping schedule, installing additional extraction wells, or ceasing extraction at wells where cleanup levels have been achieved. Monitoring data will be used to assess the effectiveness of the modifications implemented and may be used to re-assess the time frame required to achieve cleanup levels.

The levels of volatile organic contamination in the soils do not pose unacceptable dermal contact or ingestion risks; consequently, no active remedial measures are necessary to address these risks. However, the volatile organic contaminants in the soil represent a continuing source of ground-water contamination; it is expected that these volatile contaminants would be gradually reduced through natural soil flushing and the ground-water pumping and treatment program. In addition, although no active treatment of volatiles in the soil are necessary to address direct contact or ingestion risks, treatment

will be necessary of some of the more contaminated soils, if it is confirmed during design that the in-situ stabilization process may be compromised.

The soil and ground-water cleanup levels for the Site are listed in Table 7. NJDEPE has requested that soil and ground-water contamination at the Site be remediated to the levels specified in its Proposed Cleanup Standards for Contaminated Sites (February 1992). These proposed standards are not recognized as ARARs

The EPA and NJDEPE have agreed that site-specific risk-based cleanup levels will be used for soil and ground-water remediation. EPA recognizes NJDEPE's request that soil and ground water be remediated to the levels specified in its Proposed Cleanup Standards for Contaminated Sites (February 1992). These proposed standards are not recognized as ARARs under Section 121(d) of CERCLA because they are not yet promulgated. However, EPA has determined that further remediation of the soil and ground water at the Site to the levels requested by NJDEPE, would not conflict, or be inconsistent, with the selected remedy. The NJDEPE may agree to undertake, and fund the incremental cost associated with this additional cleanup.

In summary, the selected remedy achieves ARARs more quickly, or as quickly, and at less cost than the other options. Therefore, it will provide the best balance among alternatives with respect to the evaluating criteria. EPA and the NJDEPE believe that the preferred alternative will be protective of human health and the environment, will comply with ARARs, will be cost effective, and will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The remedy also will meet the statutory preference for the use of treatment as a principal element.

STATUTORY DETERMINATIONS

Under its legal authorities, EPA's primary responsibility at Superfund sites is to undertake remedial actions that are protective of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences. These specify that when complete, the selected remedial action for this site must comply with applicable, or relevant and appropriate environmental standards established under federal and state environmental laws unless a statutory waiver is justified. The selected remedy also must be cost effective and utilize permanent solutions and alternative treatment technologies or resource-recovery technologies to the maximum extent practicable. Finally, the statute includes a preference for remedies that employ treatment that permanently

and significantly reduce the volume, toxicity, or mobility of hazardous wastes. The following sections discuss how the selected remedy meets these statutory requirements.

Protection of Human Health and the Environment

The selected remedy is protective of human health and the environment, dealing effectively with the threats posed by the contaminants which were identified.

The principal threat posed by the Site is the contaminated soils. Stabilizing the contaminated on-site soil will protect against future direct contact, ingestion, and inhalation hazards. Additionally, the stabilization will prevent the infiltration of soil contaminants into the ground water.

Capturing and treating the contaminated on-site ground water will protect against future ingestion hazards. The contaminants in the ground water will be reduced to levels that are acceptable for drinking water.

Decontamination of the building will protect against future inhalation and ingestion hazards. Demolition and off-site disposal will eliminate the physical hazards, associated with the condemned building, for on-site workers.

Compliance with ARARs

The selected remedy will comply with the substantive requirements of the following statutes and regulations.

Chemical-specific ARARs (Tables 7 and 8)

The contaminants of concern in the ground water will be reduced to levels that meet Federal and/or State MCLs.

The contaminants of concern in the soil will be treated to reduce the direct contact, ingestion, and inhalation exposure risks to 1×10^{-6} for carcinogens, and to an HI less than 1.0 for noncarcinogens.

Action-specific ARARs (Table 9)

The ground-water treatment system will be designed to treat the extracted ground water to MCLs prior to recharge to the aquifer.

All sludge produced by the ground-water treatment system will be handled and disposed of in accordance with the Resource Conservation and Recovery Act, the Hazardous and Solid Waste Regulations of 1984, the Hazardous Materials Transportation Act, and the Occupational Safety and Health ACT.

The air stripper element of the ground-water treatment system will be designed to meet the New Jersey Air Pollution Control Regulations for VOC and toxic emissions (NJAC 7:27-16 & 17).

The stabilized soil will meet RCRA standards for leachability and toxicity.

PCB contaminated soil will be disposed of in accordance with the Toxic Substances Control Act.

The decontaminated building debris will be disposed of in accordance with the New Jersey Regulations for the Identification of Hazardous Waste.

Location-specific ARARs

There are no location-specific ARARs associated with the soil, ground water, or building remedies.

Advisories, Guidance and Criteria To Be Considered (TBCs)

The shipment of hazardous wastes off site to a treatment/disposal facility will be conducted in accordance with EPA's Office of Solid Waste and Emergency Response Directive No. 9834.11, "Revised Procedures for Planning and Implementing Off-site Response Actions". The intent of this directive is to ensure that facilities authorized to accept CERCLA-generated waste are in compliance with RCRA operation standards.

Cost-Effectiveness

Of the alternatives which most effectively address the threats posed by Site contamination, the selected remedy provides for overall effectiveness in proportion to its cost. The estimated total project cost is \$15,172,800.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

Contaminants in the ground water will be removed and treated before reinjection and/or surface discharge. Hazardous wastes generated by the treatment process will be disposed of at an approved off-site facility. This will significantly reduce the toxicity, mobility and volume of the contaminants, and offer a permanent solution to the risks posed by the contaminated ground water.

The treatment of soils and debris contaminated with PCBs over 50 ppm at an approved off-site facility will significantly reduce the toxicity, volume and mobility of the contaminants.

The stabilization of soil contaminated with metals and PCBs less than 50 ppm will reduce the mobility of these contaminants and, therefore, represents a permanent solution to the risks posed by the contaminated soil. However, the toxicity and volume of the contaminated soil will not be reduced. Considering the relatively large volume of metals and PCB contaminated soil (8000 yd³), EPA believes that the selected remedy represents the maximum extent to which the toxicity, mobility, and volume can be reduced in a cost-effective manner.

Decontamination of the building and off-site disposal of the building debris will permanently remove the physical and health hazards associated with it.

Preference for Treatment as a Principal Element

The selected ground-water remedy satisfies the preference for treatment as a principal element. The on-site contaminated ground water will be extracted and treated, using precipitation for metals and air stripping for VOCs, to reduce the levels of contaminants, thereby reducing the risk to human health.

The statutory preference for remedies that employ treatment as a principal element will also be satisfied for the contaminated on-site soil. The metal and PCB contaminated soil will be stabilized in-situ, thereby reducing risk to human health.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the Site was released to the public on July 27, 1992. The Proposed Plan identified the preferred alternatives for ground water, soil, and the building remediation. EPA reviewed all written and verbal comments received during the public comment period. Upon review of these comments, EPA determined that no significant changes to the selected remedy, as it was originally identified in the Proposed Plan, were necessary.

APPENDIX I

FIGURES

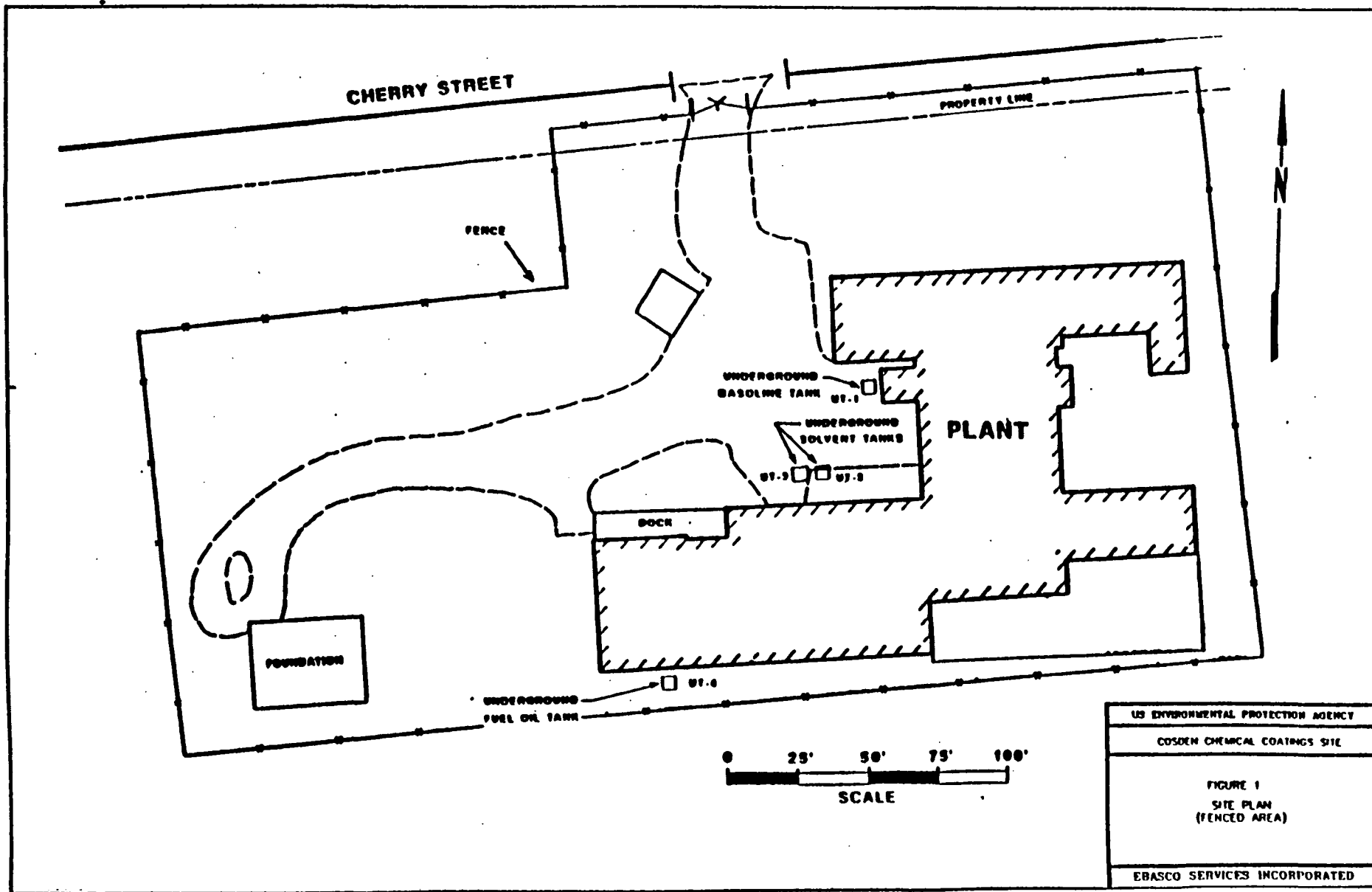


Figure 2

PRINCIPAL AREAS OF SOIL CONTAMINATION

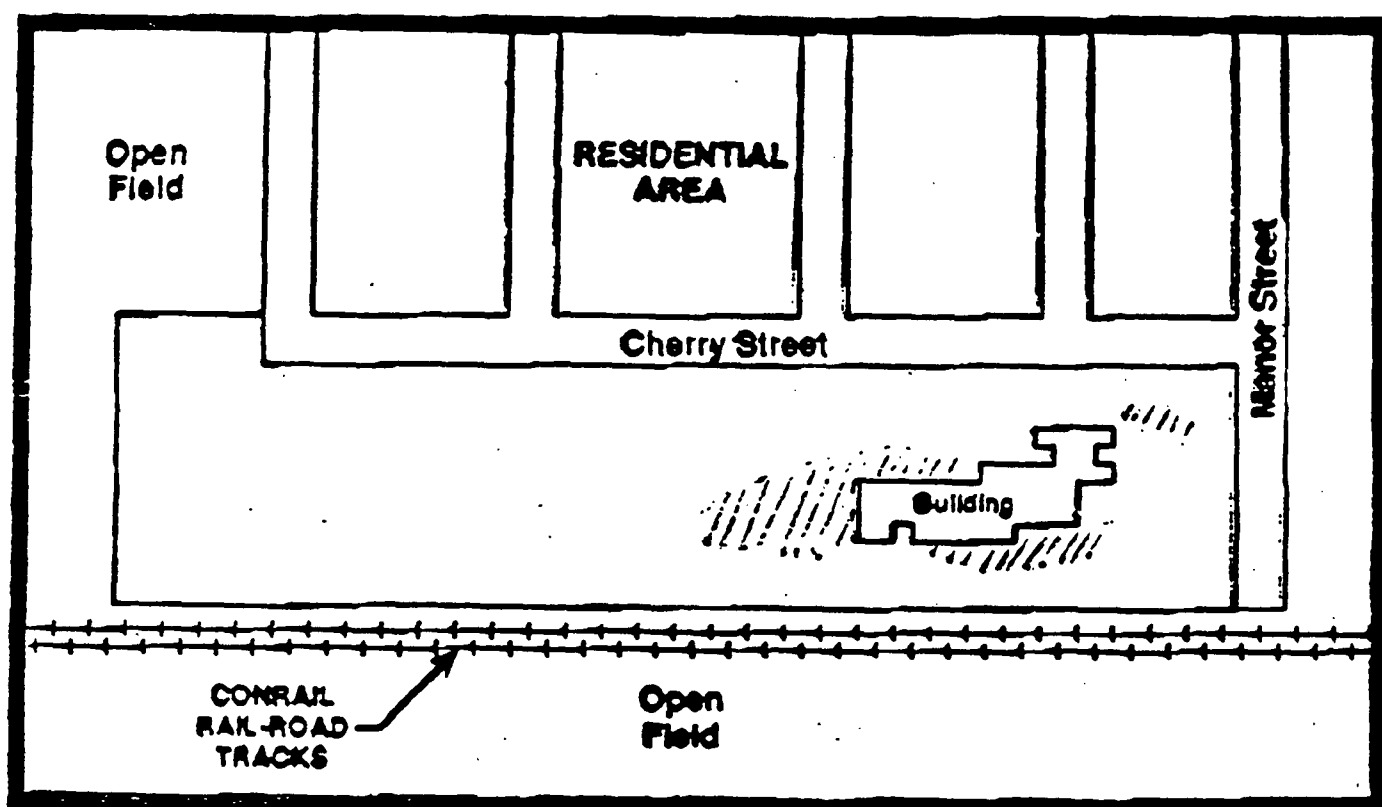
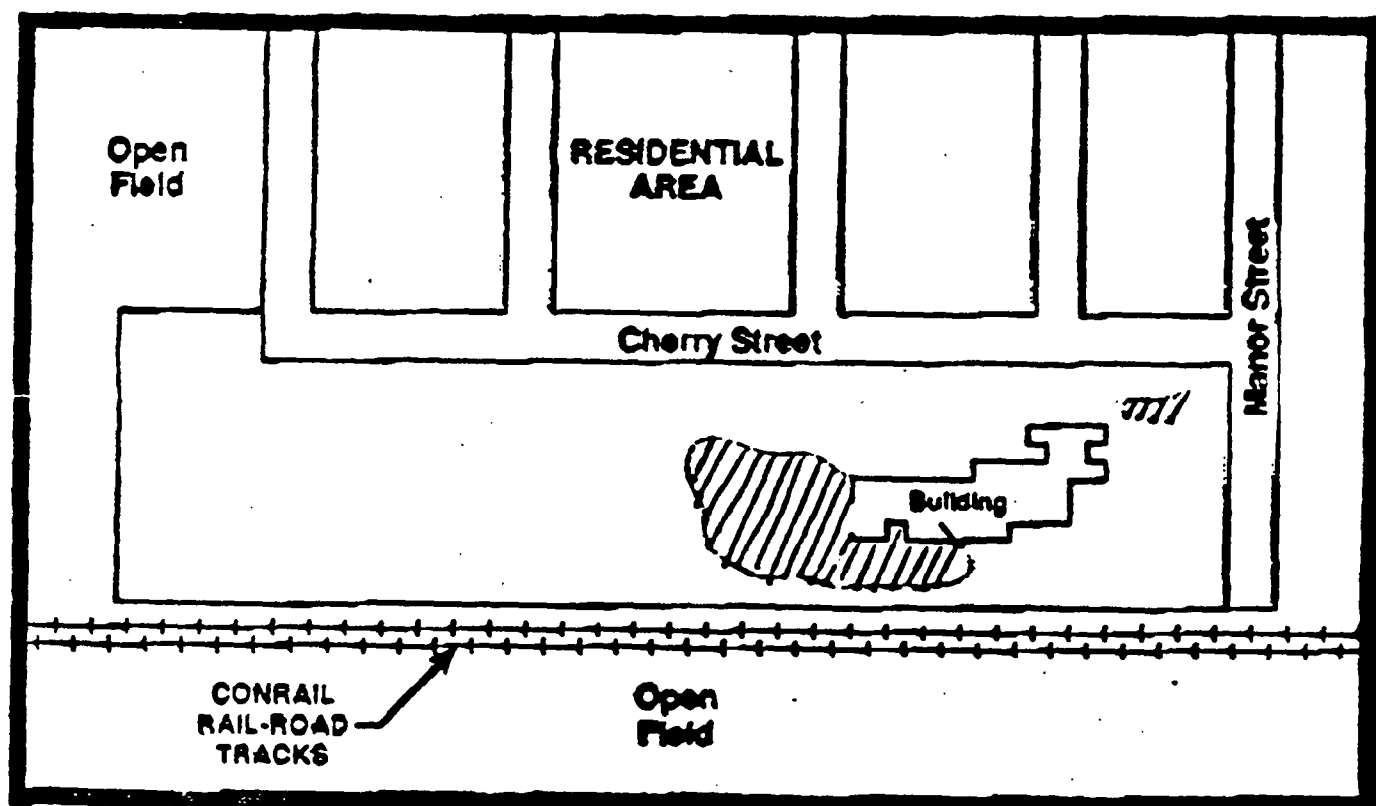


Figure 3

PRINCIPAL AREAS OF GROUND-WATER CONTAMINATION



APPENDIX II

TABLES

Table 1

Predominant Site Contaminants and Range of Concentration Detected

CONTAMINANT	SOIL (ppm)	GROUND WATER (ppb)
Toluene	ND - 1,600	ND - 1,800
Ethylbenzene	ND - 1,600	ND - 590
Xylene	ND - 7,900	ND - 1,340
Trichloroethene	ND - 1.6	ND - 84
Lead	3.7 - 6,580	ND - 29.5
Cadmium	1.1 - 2.6	ND
Chromium	6 - 36,000	ND - 388
Beryllium	0.2 - 0.6	ND - 3.4
Polychlorinated Biphenyls (PCBs)	ND - 120	ND

ppm = parts per million
ppb = parts per billion
ND = Not Detected

Table 2

SUMMARY OF COSDEN CHEMICAL SITE
CONTAMINANTS OF CONCERN

Chlorinated Volatile Organics

Chloroform	SG
Chloromethane	SG
cis-1,2-Dichloroethene	SG
Methylene Chloride	SG
Tetrachloroethene	SI, SS, SG, GAS
1,1,2-Trichloroethane	SG
Trichloroethene	SI, SS, SG, GAS

Nonchlorinated Volatile Organics

Acetone	SG
Benzene	SG
Carbon Disulfide	SG
Ethylbenzene	SI, SS
Toluene	SI, SS, SG, GAS
Xylenes	SG

Semivolatile Organics

CPAHs	SI, SO, SS
BEHP	SI, SG
2,4-Dimethylphenol	SG
2-Methylphenol	SG
4-Methylphenol	SG
Naphthalene	SI, SG
N-Nitrosodipropylamine	SS

Pesticides/PCBs

Aroclor 1254	SI, SS
4,4'-DDT	SO

Table 2 (cont'd)

**SUMMARY OF COSDEN CHEMICAL SITE
CONTAMINANTS OF CONCERN**

Metals

Antimony	SI, SO, SS, SG
Arsenic	SI, SO, SS, SG
Barium	SI, SO, SS, SG
Beryllium	SI, SO, SS, SG
Cadmium	SI, SO, SG
Chromium	SI, SO, SS, SG
Copper	SI, SO, SS, SG
Manganese	SI, SO, SS, SG
Mercury	SI, SO, SS, SG
Nickel	SI, SO, SG
Selenium	SG
Silver	SG
Thallium	SI, SS
Vanadium	SI, SO, SS, SG
Zinc	SI, SO, SS, SG

SI = Surface Soil Inside Fence

SO = Surface Soil Outside Fence

SS = Subsurface Soil

SG = Shallow Aquifer Groundwater

GAS = Soil Gas Survey

Table 3
COSDEN CHEMICAL SITE
POTENTIAL EXPOSURE PATHWAYS AND POPULATIONS

PATHWAY		POPULATION
CURRENT SITE LAND USE		
o Surface Soil		
	Incidental Ingestion (inside and outside fence)	Trespassers on site
	Dermal Contact (inside and outside fence)	Trespassers on site
o Air		
	Inhalation of Airborne (vapor phase) chemicals (offsite)	Residents living near site
FUTURE SITE LAND USE		
o Surface Soil		
	Incidental Ingestion	Residents living onsite
	Dermal Contact	Residents living onsite
	Inhalation of Airborne (vapor phase) chemicals	Residents living onsite
o Subsurface Soil		
	Incidental Ingestion	Construction workers
	Dermal Contact	Construction workers
	Inhalation of Airborne (vapor phase) chemicals	Construction workers
o Groundwater		
	Ingestion	Residents living onsite

Table 4

TOXICITY DATA FOR NONCARCINOGENIC EFFECTS
DOSE RESPONSE EVALUATION
COSDEN CHEMICAL SITE

For Groundwater

<u>Chemical Name</u>	<u>Oral RfD (mg/kg/day)</u>	<u>Inhalation RfD (mg/m³)</u>
acetone	1.0 E ⁻⁰¹	
carbon disulfide	1.0 E ⁻¹	1.0 E ⁻⁰²
chloroform	1.0 E ⁻⁰²	
methylene chloride	6.0 E ⁻⁰²	3.0 E ⁺⁰⁰
4-methyl-2-pentanone	5.0 E ⁻⁰²	8.0 E ⁻⁰²
Tetrachloroethylene	1.0 E ⁻⁰²	
toluene	2.0 E ⁻⁰¹	2.0 E ⁺⁰⁰
1,1,2 - trichloroethane	4.0 E ⁻⁰³	
mixed xylenes	2.0 E ⁺⁰	3.0 E ⁻⁰¹
bis (2-ethylhexyl) phthalate	2.0 E ⁻⁰²	
2,4-dimethylphenol	2.0 E ⁻⁰²	
o-cresol	5.0 E ⁻⁰¹	
p-cresol	5.0 E ⁻⁰²	
naphthalene	4.0 E ⁻⁰³	
antimony	4.0 E ⁻⁰⁴	
arsenic	1.0 x 10 ⁻³	3.0 E ⁻⁰⁴
barium	5.0 x 10 ⁻²	5.0 E ⁻⁰³
beryllium	5.0 E ⁻⁰³	
cadmium	5.0 E ⁻⁰⁴	
chromium	5.0 E ⁻⁰³	
copper	3.7 E ⁻⁰²	
DDT	5.0 E ⁻⁰⁴	
Ethylbenzene	1.0 E ⁻⁰¹	1.0 E ⁺⁰⁰
manganese	1.0 E ⁻⁰¹	4.0 x 10 ⁻⁴
mercury	3.0 E ⁻⁰⁴	3.0 x 10 ⁻⁴
nickel	2.0 E ⁻⁰²	
selenium	5.0 E ⁻⁰³	
silver	3.0 E ⁻⁰³	
vanadium	7.0 E ⁻⁰³	
zinc	2.0 E ⁻⁰¹	

Note: Toxicity values are from "Risk Assistant", 1992.

Table 4 (cont'd)

TOXICITY DATA FOR CARCINOGENIC EFFECTS
DOSE RESPONSE EVALUATION
COSDEN CHEMICAL SITE

<u>Chemical Name</u>	<u>Cancer Potency</u> <u>Slope</u> <u>(mg/kg/day)⁻¹</u>	<u>Unit Risk</u> <u>($\mu\text{g}/\text{m}^3$)⁻¹</u>
benzene	2.9×10^{-2}	8.3×10^{-6}
chloroform	6.1×10^{-3}	2.3×10^{-5}
methyl chloride	1.3×10^{-2}	1.8×10^{-6}
methylene chloride	7.5×10^{-3}	2.1×10^{-7}
perchloroethylene	5.1×10^{-2}	5.2×10^{-7}
1,1,2-trichloroethane	5.7×10^{-2}	1.6×10^{-5}
bis (2-ethylhexyl) phthalate	1.4×10^{-2}	
beryllium	4.3×10^0	
trichloroethylene	1.1×10^{-2}	1.7×10^{-6}
3,4-benz (a) pyrene	5.8 E^{+00}	
N-nitrosodi-n-propylamine	7.0×10^0	
Polychlorinated biphenyls	7.7 E^{+00}	

Table 5

**COSDEN CHEMICAL SITE
SUMMARY OF RISKS ACROSS PATHWAYS
PRESENT USE**

RECEPTOR	PATHWAY	CARCINOGENIC RISKS		NONCARCINOGENIC HAZARD INDICES	
		ADULTS	CHILDREN	ADULTS	CHILDREN
Trespassers/ Off-site Residents	Soil Ingestion - Inside Fence (on-site)	9.0E-07	NA	2.0E-03	NA
	Soil Ingestion - Outside Fence (on-site)	7.9E-07	2.1E-08	9.0E-03	9.3E-02
	Dermal Contact with Soil - Inside Fence (on-site)	8.5E-07	NA	4.4E-03	NA
	Dermal Contact with Soil - Outside Fence (on-site)	-	-	1.1E-03	9.0E-03
	Inhalation of Airborne Chemicals (off-site) (1)	1.7E-08	8.1E-07	8.4E-03	1.8E-02
		9.6E-08	2.9E-08	1.5E-02	8.4E-02

Notes: (1) - Risk and hazard indices calculated for the nearest offsite resident using soil gas data to estimate emissions.

NA - Pathway not evaluated

Table 5 (cont'd)

**COSDEN CHEMICAL SITE
SUMMARY OF RISKS ACROSS PATHWAYS
FUTURE-USE**

RECEPTOR	PATHWAY	CARCINOGENIC RISKS		NONCARCINOGENIC HAZARD INDICES	
		ADULTS	CHILDREN	ADULTS	CHILDREN
On-site Residents	Soil Ingestion - Inside Fence (on-site)	1.4E-08	7.7E-08	8.8E-03	2.2E-01
	Soil Ingestion - Outside Fence (on-site)	8.6E-07	4.8E-06	3.3E-03	9.9E-02
	Dermal Contact with Soil - Inside Fence (on-site)	7.1E-08	9.8E-08	3.7E-04	2.2E-03
	Dermal Contact with Soil - Outside Fence (on-site)	-	-	1.2E-03	8.9E-03
	Inhalation of Volatiles (from soil) (1)	1.8E-05	8.8E-06	9.2E-02	1.9E-01
	Groundwater Ingestion	2.8E-04	9.0E-05	1.1E+01	1.6E+01
		3.1E-04	1.2E-04	1.1E+01	1.7E+01

Notes: (1) - Risks and hazard indices calculated using soil gas data to estimate emission rates.

Table 6

Summary of Estimated Capital and Present Worth Costs

Alternative S-1: No Action.

Estimated Capital Cost: \$0
Estimated 5 Year Review Cost: \$20,000 per review
Estimated Present Worth: \$55,600 (includes six 5 yr reviews)
Estimated Construction Time: none

Alternative S-2: Limited Action.

Estimated Capital Cost: \$0
Estimated Annual Operation and Maintenance (O&M) Cost: \$0
Estimated 5 Year Review Cost: \$20,000 per review
Estimated Present Worth: \$55,600 (includes six 5 yr reviews)
Estimated Construction Time: none

Alternative S-3: Capping.

Estimated Capital Cost: \$599,400
Estimated Annual O&M Cost: \$121,000
Estimated 5 Year Review Cost: \$20,000 per review
Estimated Present Worth: \$2,515,100
Estimated Construction Time: six months

Alternative S-4: Excavation, Off-Site Stabilization and Disposal, and Backfill.

Estimated Capital Cost: \$7,187,850
Estimated Annual O&M: \$0
Estimated Present Worth: \$7,187,850
Estimated Construction Time: six months

Alternative S-5: Excavation, On-Site Stabilization, and On-Site Backfill

Estimated Capital Cost: \$2,098,950
Estimated 5 Year Review Cost: \$20,000
Estimated annual O&M Cost: \$106,600
Estimated Present Worth: \$3,793,250
Estimated Construction Time: one year

Alternative S-6: In-Situ Stabilization

Estimated Capital Cost: \$1,573,700
Estimated 5 Year Review Cost: \$20,000
Estimated Annual O&M Cost: \$106,600
Estimated Present Worth: \$3,268,000
Estimated Construction Time: one year

Table 6 (cont'd)

GROUND WATER REMEDIAL ALTERNATIVES

Alternative GW-1: No Action.

Estimated Capital Cost: \$0
Estimated 5 Year Review Cost: \$ 20,000 per review
Estimated Present Worth: \$55,600 (includes six 5 yr reviews)
Estimated Construction Time: none

Alternative GW-2: Limited Action.

Estimated Capital Cost: \$ 231,400
Estimated Annual O&M Cost: \$ 90,000
Estimated 5 Year Review Cost: \$ 20,000
Estimated Present Worth: \$ 1,670,500
Estimated Construction Time: six months

Alternative GW-3: On-Site Ground Water Extraction and Treatment, and Recharge to the Aquifer.

Option 1: Precipitation, Air Stripping, and Reinjection.

Estimated Capital Cost: \$1,438,000
Estimated Annual O&M Cost: \$478,900
Estimated Present Worth: \$8,799,900
Estimated Construction Time: six months

Option 2: Precipitation, Activated Carbon Treatment, and Reinjection.

Estimated Capital Cost: \$1,522,800
Estimated Annual O&M Cost: \$494,200
Estimated Present Worth: \$9,119,600
Estimated Construction Time: six months

Option 3: Precipitation, Ultra Violet (UV) Oxidation, and Reinjection.

Estimated Capital Cost: \$1,669,200
Estimated Annual O&M Cost: \$666,900
Estimated Present Worth: \$11,951,100
Estimated Construction Time: six months

Table 6 (cont'd)

BUILDING REMEDIAL ALTERNATIVES

Alternative B-1: No Action.

Estimated Capital Cost: \$0
Estimated 5 Year Review Cost: \$10,100
Estimated Present Worth: \$13,400
Estimated Construction Time: none

Alternative B-2: Limited Action.

Estimated Capital Cost: \$30,800
Estimated Annual O&M Cost: \$10,200
Estimated Present Worth: \$243,200
Estimated Construction Time: none

Alternative B-3: Decontamination, Demolition, and On-site Disposal.

Estimated Capital Cost: \$2,852,600
Estimated Annual O&M Cost: \$7,700
Estimated 5 Year Review Cost: \$20,000
Estimated Present Worth: \$3,026,600
Estimated Construction Time: six months

Alternative B-4: Decontamination, Demolition, and Off-site Disposal.

Estimated Capital Cost: \$3,104,900
Estimated Annual O&M Cost: Not Applicable (N/A)
Estimated Present Worth: \$3,104,900
Estimated Construction Time: six months

Table 7

**SUMMARY OF CHEMICALS OF CONCERN AND
CORRESPONDING ARARs/TBCs**

GROUND WATER

Site Contaminant	Maximum Concentration Detected (ppb)	ARAR (ppb).	TBC³ (ppb)
Toluene	1,800	1,000 ^{1,2}	1,000
Trichloroethene	84	1 ²	N/A
Ethylbenzene	590	700 ^{1,2}	700
Xylene	1,340	44 ²	N/A
Chromium (total)	388	100 ^{1,2}	100
Lead (at tap)	29.5	15 (TT)	N/A

¹ Federal Drinking Water Standard (MCL) (40 CFR Part 141)

² New Jersey Safe Drinking Water Act (SMCL) (NJAC 7:10-16)

³ Non-zero Maximum Contaminant Level Goals (MCLGs)

TT Treatment Technique

N/A Not Applicable

SOIL

Site Contaminant	Maximum Concentration Detected (ppm)	ARAR⁴
Beryllium	1.5	1 ⁵
Chromium	36,100 (total)	78,000 (+3) ⁶ 390 (+6) ⁶
Lead	6,580	500 ⁷
PCB	120	1 ⁸

⁴ Defines the aerial extent of soil to be stabilized (approximately 8000 yd³)

⁵ Calculated from 1x10⁻⁶ risk, then deferred to the practical quantification limit.

⁶ Calculated from 1x10⁻⁶ risk

⁷ Established by OSWER directive #9355.4-02

⁸ Established by OSWER directive #9355.4-01

Table 8

CONTAMINANT-SPECIFIC ARARs, CRITERIA AND GUIDANCE

REGULATORY LEVEL	ARAR IDENTIFICATION	STATUS	REGULATORY SYNOPSIS	FS CONSIDERATION
Federal	RCRA Maximum Contaminant Levels (MCLs)	Relevant and Appropriate	Provides standards for 14 toxic compounds and pesticides for protection of groundwater. These standards are equal to the MCLs established by SDWA.	The promulgated values are included in the SDWA MCLs. The combined standards are compared with the maximum contaminant levels at the site to determine the level of contamination.
Federal	SDWA Maximum Contaminant Levels (MCLs)	Relevant and Appropriate	Provides standards for toxic compounds for public drinking water.	The promulgated values are used as standards to determine the level of treatment for groundwater discharge.
Federal	SDWA MCL Goals ¹	Relevant and Appropriate	EPA has promulgated contaminants levels and has proposed others for public water system. The MCLGs are health goals and are set at levels that would result in no known or anticipated adverse health effects with an adequate margin of safety.	MCLGs are used as reference values to indicate contaminant levels for the site.
Federal	RCRA Identification of Hazardous Waste (40 CFR 261)	Relevant and Appropriate	Provides regulations concerning identification and classification of RCRA Hazardous Waste.	Will be used to determine RCRA listed and characteristic waste present at the site.
Federal	RCRA Land Disposal Restriction (LDR) (40 CFR 268)	Applicable	Limits land disposal options and provides treatment standards for contaminants prior to disposal.	Treatment standards or BDAT requirements must be met prior to land disposal. Effective for CERCLA soil and debris as of November 1990.
Federal	National Ambient Air Quality Standards (NAAQS) (40 CFR 50)	Applicable	These standards provide acceptable limits for particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, and lead that must not be exceeded in ambient air.	Remediation technologies that could release contaminants into the air will be designed to meet these standards.
Federal	Toxic Substance Control Act (TSCA) PCB Regulations (40 CFR 761)	Applicable	Requires materials containing PCB concentrations greater than 50 ppm to be incinerated, disposed of in a TSCA landfill or alternate treatment to reduce PCBs to 2 ppm.	Treatment standards will be used for PCB remediation and disposal.

Table 8 (cont'd)

CONTAMINANT-SPECIFIC ARARs, CRITERIA AND GUIDANCE

REGULATORY LEVEL	ARAR IDENTIFICATION	STATUS	REGULATORY SYNOPSIS	FS CONSIDERATION
Federal	TSCA PCB Spill Cleanup and Disposal Regulations (40 CFR 761)	Applicable	These regulations provide requirements and cleanup levels for PCB spills and disposal of PCB contaminated media.	Remediation of soil contaminated and PCBs will comply with these regulations.
Federal	EPA Risk Reference Doses (RfDs)	To Be Considered	RfDs are considered to be the levels unlikely to cause significant adverse health effects associated with a threshold mechanism of action in human exposure for a lifetime.	EPA Reference Doses are used to characterize risk associated with non-carcinogens in various media.
New Jersey	New Jersey Regulations for the Identification of Hazardous Waste (NJAC 7:26-8)	Applicable	Provides regulations concerning the identification and classification of Hazardous Waste	Will be used to determine listed and characteristic hazardous waste at the site.
New Jersey	New Jersey Groundwater ¹ Quality Standards	Applicable	Provides quality standards for groundwater based on aquifer characteristics and use.	The levels will be compared to levels at the site to determine contaminant migration.
New Jersey	New Jersey Safe Drinking ¹ Water Act Maximum Contaminant Levels (MCLs) (NJAC 7:10-16)	Relevant and Appropriate	Provides quality standards for drinking water.	These levels will be compared to contaminant levels at the site to determine contaminant migration.
New Jersey	New Jersey Ambient Air Quality Standards (NJAC 7:27-13)	Applicable	Provides guidance regarding air emissions.	Remedial activities which cause air emissions will conform to these standards.
New Jersey	New Jersey RCRA MCLs (NJAC 7:14A-6.15) ¹	Relevant and Appropriate	Provides standards for toxic compounds for the protection of groundwater.	These standards will be compared with contamination levels at the site to determine the level of contamination.

1) Applies to alternatives including groundwater monitoring

Table 9**ACTION-SPECIFIC ARARs**

REGULATORY LEVEL	ARARS	STATUS	REGULATORY SYNOPSIS
A. Common to all Alternatives	OSHA - General Industries Standards (29 CFR 1910)	Applicable	These standards regulate the 8-hour time weighted average concentration for worker exposure to various compounds. Timing requirements for workers at hazardous wastes operations are also specified.
	OSHA - Safety and Health Standards (29 CFR 1926)	Applicable	This regulation specifies the type of safety equipment and procedures to be followed during site remediation.
	OSHA - Recordkeeping, Reporting and Related Regulations (29 CFR 1904)	Applicable	This regulation outlines the recordkeeping and reporting requirements for an employer under OSHA.
	RCRA TSDR Regulation (40 CFR 264 and 265 subparts A, B, C, D, E, F, G, L, and N)	Relevant and Appropriate	Provides standards for hazardous waste treatment facilities with regard to design and operation of treatment, storage and disposal systems (ie, general facility standards, landfills, incinerators, containers, etc.)
	RCRA Requirements for Transporting Waste for Off-Site Disposal (40 CFR 263)³	Relevant and Appropriate	Provides manifest and record keeping requirements for generators of hazardous waste.
	RCRA Standards for Generators of Hazardous Waste (40 CFR 262)	Relevant and Appropriate	General standards for generators of hazardous waste.
	RCRA Nonhazardous Waste Management Standards (40 CFR 257)²	Relevant and Appropriate	Provides standards for the management of nonhazardous waste under RCRA Subpart D.
	RCRA Groundwater Monitoring Requirements (40 CFR 264 Subpart F)⁴	Relevant and Appropriate	This regulation details requirements for groundwater monitoring programs.
	National Emission Standards for Hazardous Air Pollutants (NESHAPS) (40 CFR 61)	Applicable	Provides standards for acceptable limits for specific chemicals in air emissions. Requirements address operational, record keeping, and general emission standards that apply to air pollution control equipment.

Table 9 (cont'd)

ACTION-SPECIFIC ARARs

REGULATORY LEVEL	ARARS	STATUS	REGULATORY SYNOPSIS
	DOT Rules for Hazardous Materials Transport (49 CFR 171)³	Applicable	Provides requirements for the transportation of hazardous waste.
	New Jersey Department of Transportation Regulations for Transport of Hazardous Waste (NJAC 7:26-3 and 7)	Applicable	Provides requirements for the transportation of hazardous waste.
	New Jersey Standards for the Design and Operation of Hazardous Waste Treatment Facilities (NJAC 7:26)	Relevant and Appropriate	This regulation outlines general waste facility requirements with regard to waste analysis, security measures, inspection and training requirements.
	New Jersey Noise Pollution Regulations (NJAC 7:29)	Applicable	Provides standards for the control of noise pollution.
B. Groundwater	NPDES Regulations (40 CFR 122)	Relevant and Appropriate	Provides regulations for discharge of the treatment system effluent and stormwater runoff. Refers to effluent limitations for discharge to surface water.
	New Jersey Pollution Discharge Elimination System Regulations NJAC (7:14A)	Relevant and Appropriate	Provides regulations for discharge of pollutants to surface water of the State.
C. Soil and Building	RCRA Closure and Post-Closure Standards (40 CFR 264, Subpart O)	Relevant and Appropriate	This regulation details specific requirements for closure and post-closure of hazardous waste facilities.
	RCRA Subtitle D Nonhazardous Waste Management Standards (40 CFR 257)¹	Relevant and Appropriate	Provides regulations for the management of non-hazardous waste.

Table 9 (cont'd)**ACTION-SPECIFIC ARARs**

REGULATORY LEVEL	ARARS	STATUS	REGULATORY SYNOPSIS
	RCRA Land Disposal Restrictions (LDRs) (40 CFR 268)	Applicable	Regulates land disposal of hazardous waste. Provides treatment levels which must be met before land disposal of hazardous waste may occur.
	TSCA PCB Spill Cleanup and Disposal Regulations (40 CFR 761)	Applicable	Remediation and disposal of PCB contaminated soils will be in compliance with these regulations.
	New Jersey RCRA Closure and Post-Closure Standards (NJAC 7:26)	Relevant and Appropriate	This regulation details specific requirements for closure and post-closure of hazardous waste facilities.
	New Jersey Asbestos Regulations (NJAC 12:120 and 8:60)	Relevant and Appropriate	Remediation of asbestos will comply with pertinent sections of these regulations.
	New Jersey Standards for Generators of Hazardous Waste (NJAC 7:26)	Applicable	General Standards for generators of hazardous waste.
	New Jersey Air Pollution Control Requirements (NJAC 7:27)	Applicable	Provides guidelines for the control of Air contaminants.
	New Jersey Soil Erosion and Sediment Control Act Requirements¹	To Be Considered	Provides guidelines for soil erosion and sediment control plans.

1) Applies to alternatives involving excavation only.

2) Applies to alternative which involve on-site disposal.

3) Applies to alternatives which involve off-site transportation

4) Applies to groundwater monitoring.

APPENDIX IV

STATE LETTER OF CONCURRENCE



**State of New Jersey
Department of Environmental Protection and Energy
Office of the Commissioner**

CN 402
Trenton, NJ 08625-0402
Tel. # 609-292-2885
Fax. # 609-984-3962

Scott A. Weiner
Commissioner

SEP 29 1992

Mr. Constantine Sidamon-Eristoff
Administrator
U.S. Environmental Protection Agency
Region II
Jacob K. Javits Federal Building
New York, New York 10278

Dear Mr. Eristoff:

The Department of Environmental Protection and Energy has evaluated and concurs with the selected remedy for the Cosden Chemical Company Superfund site as stated below:

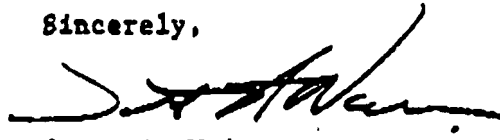
The selected remedy represents the first and only planned operable unit for the Cosden Chemicals Coatings Corporation site. It addresses contaminated soils and the building on the site and ground water contamination in the underlying aquifer.

The major components of the selected remedy include the following:

- o In-situ stabilization of approximately 8,000 cubic yards of soil contaminated with inorganic compounds and polychlorinated biphenyls;
- o Decontamination and demolition of the building on the site with disposal of the building debris at an appropriate off-site facility;
- o Extraction of contaminated ground water with on-site treatment and recharge to the underlying aquifer;
- o Appropriate environmental monitoring to ensure the effectiveness of the remedy.

The State of New Jersey appreciates the opportunity to participate in this decision making process and looks forward to future cooperation with the USEPA.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott A. Weiner", written over a horizontal line.

Scott A. Weiner
Commissioner

dfh